

Ray Diagram Rules

Plane Mirrors:

For all important points on the object:

1. Draw the incident and reflected rays where the angle of incidence (θ_i) = 0
2. Draw the incident and reflected rays for any other incident angle
3. extend the reflected rays into the mirror with dotted lines
4. where the dotted lines intersect is where the point of the image is

Concave and Convex Mirrors

For the top of your object:

1. draw a ray that goes straight through C (extend behind the mirror with dotted lines)
2. draw a ray that goes through f and reflects parallel to the principal axis (extend the reflected ray behind the mirror with dotted lines)
3. Either the dotted lines or the reflected rays will intersect, this is where the top of your image will be

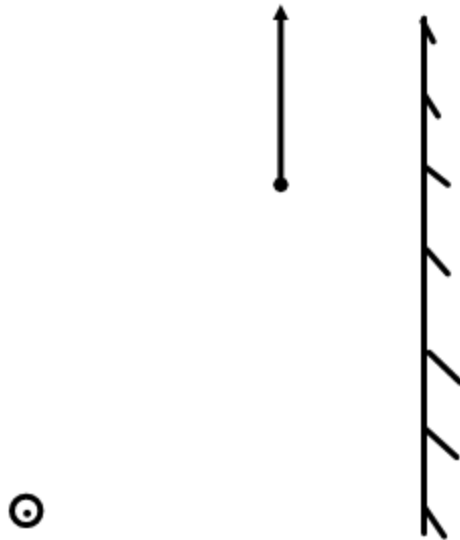
Criteria for describing images

1. Location -how far it is from the mirror (closer, further, same distance)
2. Orientation - has it flipped upside down (upright, inverted)
3. Size- the magnification (bigger, smaller, same size)
4. Type- Is the image behind or in front of the mirror (virtual, real)

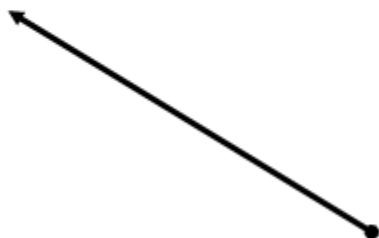
Plane Mirror Ray Diagram Worksheet

Work through these ray diagram problems using the steps that we discussed in class—make sure to draw in all rays, as well as normal lines.

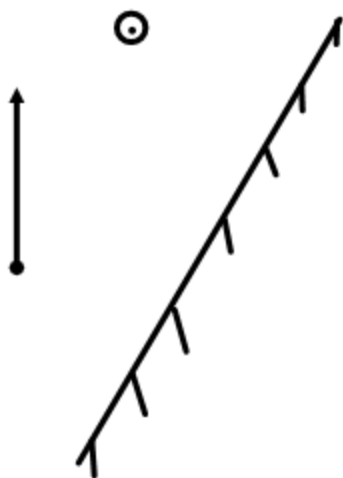
1)



2)



3)



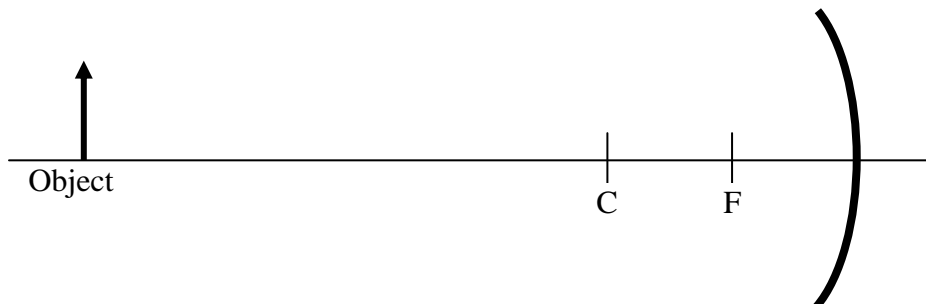
Mirror Ray Diagram

Directions: Use the rules from the *Optical Ray Diagram Rules* information sheet, follow along with your teacher to draw the ray diagrams for the various cases of optical references.

Curved Mirrors

Spherical Concave Mirror

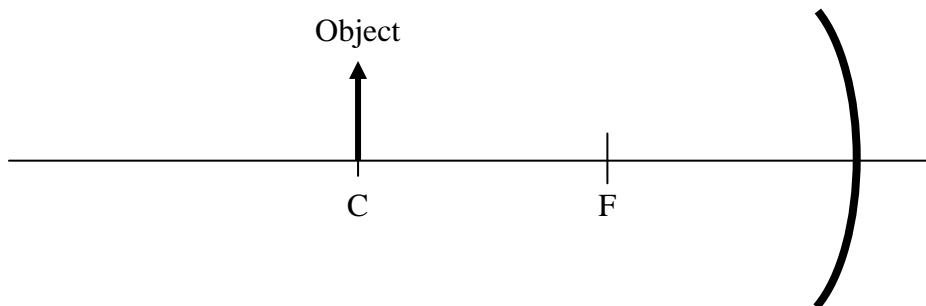
Case I: Object is far beyond C (at ∞)



Case I: Image Appears:

1. Location: _____
2. Orientation: _____
3. Size: _____
4. Image Type: _____

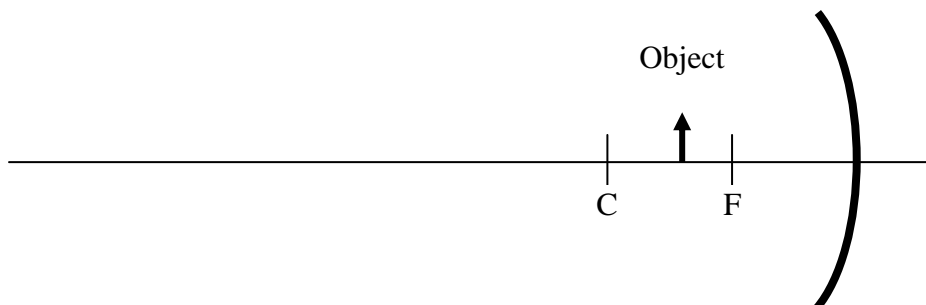
Case II: Object is at C



Case II: Image Appears:

1. Location: _____
2. Orientation: _____
3. Size: _____
4. Image Type: _____

Case III: Object is between C and F

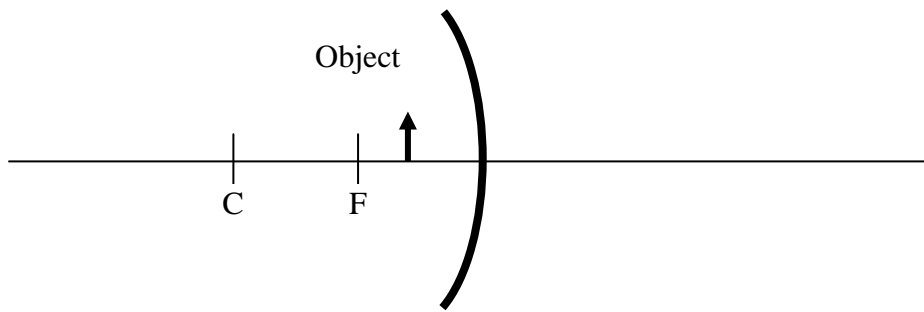


Case III: Image Appears:

1. Location: _____
2. Orientation: _____
3. Size: _____
4. Image Type: _____

(Over)

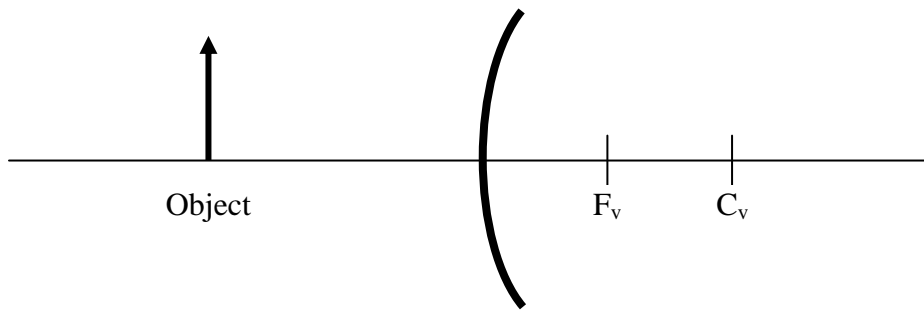
Case IV: Object is inside F (between F and Mirror)



Case IV: Image Appears:

1. Location: _____
2. Orientation: _____
3. Size: _____
4. Image Type: _____

Spherical Convex Mirror Has only ONE case.



Convex Mirror's Image Appears:

1. Location: _____
2. Orientation: _____
3. Size: _____
4. Image Type: _____